

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		17.613	42.063	34.151	34.190	22.817	23.077	23.419
1821/Conventional Fuzed Warhead Package		13.059	13.558	8.661	9.050	12.592	12.897	13.241
2299/Non-Nuclear Expendable Ordnance		0.914	25.486	25.490	25.140	10.225	10.180	10.178
0363/Insensitive Munitions Advanced Development		3.640	3.019	0.000	0.000	0.000	0.000	0.000

**Defense Emergency Response Funds (DERF) Funds: Not Applicable**

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

Conventional Fuzed Warhead Package (Project 1821): The Navy requires improved lethality of air and surface launched ordnance to defeat advanced threats. This is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology to meet this requirement. This program is a significant vehicle for orderly planning, and timely and effective transition of Navy 6.2 and 6.3A investments to Engineering and Manufacturing Development (E&MD) phase missile/weapon systems. This program addresses increased lethality against current and emerging threats, and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense and ship defense -- and supports development of complete ordnance sections. The current on-going projects address significant technology advancements for missile systems by developing mature physical concepts to enhance anti-air kill probability, advanced ordnance with augmented overland cruise missile defense and theater ballistic missile defense capabilities, and advanced seeker technology. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.

**B. PROGRAM ACCOMPLISHMENTS AND PLANS:**

The Guidance Integrated Fuze (GIF) program is the major constituent of the NNEO budget line, representing \$25M annually in FY04-FY06, and \$10M annually from FY07-FY09. Other NNEO programs include the Multi-Function Fuze (MFF) P3I and the Extended Range Propulsion Charge.

1. FY2004 PLANS:

(\$25M) GIF: Award two contracts for developing the GIF baseline design for high rate, low cost production. Evaluate 10 fuzes from each contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Formally document all design and test data and provide to both contractors.

2. FY2005 PLANS:

(\$25M) GIF: Complete two additional design-build-test cycles, resulting in each contractor providing 25 (Jan 05) and 100 (Aug 05) fuzes for government evaluation. Perform the full spectrum of laboratory, simulation and gun launch tests to determine the best design. Award 1,250 fuze option to one contractor (Sep 05).

3. FY2006 PLANS:

(\$25M) GIF: 1,250 GIFs delivered (Apr 06): 150 for acceptance testing and 100 for operational assessment. The remaining 1,000 GIFs will be production representative hardware suitable for Field Training and Follow-on Test and Evaluation, as necessary.

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Exhibit R-2, RDTEN Budget Item Justification  
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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: <b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY /BA-4</b>	R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions	
<p>Non-Nuclear Expendable Ordnance (NNEO) (Project 2299): This item addresses improvements to Navy surface launched (2T) NNEO. It supports transition of the Multi-Function Fuze (MMF) from E&amp;MD to production.</p> <p>Insensitive Munitions Advanced Development (IMAD) (Project 0363): Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft, and personnel. This IMAD program will provide, validate, and transition technology for explosives, propellants, and ordnance to enable production of munitions insensitive to unplanned stimuli with no reduction to combat performance.</p>		

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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		13.059	13.558	8.661	9.050	12.592	12.897	13.241
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides for orderly planning, timely maturation, and effective transition of Navy 6.2 and 6.3A investments in ordnance technology to missile/weapon systems end item System Development and Demonstration (SD&D) phase development. It is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology. It focuses on increasing effectiveness against current and emerging threats and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense, and ship defense. On-going projects make advanced fuze and warhead technology available to and reduce the time and risk for specific system development programs by performing three important functions: (1) identify technology advances with the most potential to improve generic warhead and fuze safety, reliability, and effectiveness; (2) mature the most promising technologies with a goal of achieving Technology Readiness Level 6, or preferably TRL 7, and (3) transition mature technology to specific cruise missile, surface-to-air missile, and land attack weapons system development programs. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package	
<b>B. Accomplishments/Planned Program</b>			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	7.825		
RDT&E Articles Quantity			
SM-2 Block IIIB MK 45 MOD 14 TDD: FY 03: Completed advanced development			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.400	1.250	
RDT&E Articles Quantity			
Details held at a higher classification. For further information contact Ms. Melinda Busansky at 703-692-9433.			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.593		
RDT&E Articles Quantity			
Advanced Warhead Technology Selection: FY 03: Incorporated results of Reactive Materials Enhanced Warhead FNC and continued warhead effectiveness analysis, end-game analysis, and multi-point initiator improvement			

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Exhibit R-2a, RD TEN Project Justification  
(Exhibit R-2a, page 4 of 28)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package	
<b>B. Accomplishments/Planned Program (Cont.)</b>			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.000		
RDT&E Articles Quantity			
Micro-Electro-Mechanical System Safe and Arm Device: FY 03: Continued preliminary design risk reduction			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.241	0.821	0.433
RDT&E Articles Quantity			
Future Standard Missile Systems (FSMS) Studies: FY 03: Continued system engineering studies to support mid and far term strategic planning for warhead and fuze development. FY 04: Continue system engineering studies to support mid and far term strategic planning for warhead and fuze development. FY 05: Continue system engineering studies to support mid and far term strategic planning for warhead and fuze development.			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		11.487	8.228
RDT&E Articles Quantity			
Advanced Fuze Technology Development: FY 04: Perform preliminary concept design review of Guidance Integrated Fuzing and MEMS Safe and Arm Device (SAD) technologies. FY 05: Risk reduction, and other preparations for transitioning advance fuze technologies to System Development and Demonstration.			

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Exhibit R-2a, RDTEN Project Justification  
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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package

**C. PROGRAM CHANGE SUMMARY:**

	FY 2003	FY 2004	FY 2005
Funding:			
Previous President's Budget: (FY 04 Pres Controls)	13.390	13.713	14.580
Current BES/President's Budget: (FY05 Pres Controls)	13.059	13.558	8.661
Total Adjustments	-0.331	-0.155	-5.919
Summary of Adjustments			
Issue 21506 Conventional Munitions			-5.000
BTR	-0.133		
SBIR/STTR Transfer	-0.154		
BSO Adj.	-0.044		
Economic Assumptions		-0.155	
MANPOWER			-0.865
Inflation Savings			-0.028
NWCF Rates			-0.026
Subtotal	-0.331	-0.155	-5.919

Schedule: Not Applicable

Technical: Not Applicable

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package
<p>D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p> <p>E. ACQUISITION STRATEGY: Not Applicable</p> <p>F. MAJOR PERFORMERS:</p> <p>Raytheon Company, Tucson, AZ; SM-2 Block IIIB MK 45 MOD 14 TDD development NSWC Dahlgren, Dahlgren, VA; Advanced Warhead Technology Analysis; NAWC China Lake</p>		

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**Exhibit R-3, Project Cost Analysis**  
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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2004		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603609N/Conventional Munitions			1821/Conventional Fuzed Warhead Package						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	12.987							0.000	12.987	
	WR	NAWC China Lake	15.582							0.000	15.582	
	WR	WSMR								0.000	0.000	
	CPAF	Raytheon								0.000	0.000	
	WR	NSWC Port Hueneme		0.762	10/02					0.000	0.762	
Subtotal T&E			28.569	0.762		0.000		0.000				
Remarks:												
Program Management Support	WR	NSWC Dahlgren	2.074							0.000	2.074	
	WR	NAWC China Lake	3.360							0.000	3.360	
	C/FPI	Various	3.092	2.632	11/02	2.645	11/03	1.769	11/04	Continuing	Continuing	
	RC	NSWC Indian Head	0.160							0.000	0.160	
Travel	PD	NAVSEA Travel	0.350	0.025		0.025		0.025		Continuing	Continuing	
Subtotal Management			9.036	2.657		2.670		1.794				
Remarks:												
Total Cost			222.642	13.059		13.558		8.661		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis  
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EXHIBIT R4, Schedule Profile: <b>NOT APPLICABLE</b>																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
<b>RDT&amp;E, N / BA-4</b>												0603609N/Conventional Munitions												1821/Conventional Fuzed Warhead Package											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Acquisition Milestones																																			
Prototype Phase																																			
Radar System Development																																			
EDM Radar Delivery																																			
Software 1XXSW Delivery 2XXSW Delivery																																			
Test & Evaluation Milestones																																			
Development Test																																			
Operational Test																																			
Production Milestones																																			
LRIP I FY 05																																			
LRIPII FY 06																																			
FRP FY 07																																			
Deliveries																																			

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\* Not required for Budget Activities 1, 2, 3, and 6

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## CLASSIFICATION:

Exhibit R-4a, Schedule Detail: <b>NOT APPLICABLE</b>						DATE: <b>February 2004</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initail Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

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Exhibit R-4a, Schedule Detail  
(Exhibit R-4a, page 11 of 28)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA - 4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions			PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		<b>0.914</b>	<b>25.486</b>	<b>25.490</b>	<b>25.140</b>	<b>10.225</b>	<b>10.180</b>	<b>10.178</b>
RDT&E Articles Qty								
<b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b>  <p>This budget item addresses improvements to Navy surface launched (2T) Non-Nuclear Expendable Ordnance (NNEO) outside existing operational capabilities. The commodities comprising 2T NNEO are : Major and medium caliber gun ammunition, small arms ammunition, other ship gun ammunition, pyrotechnics, and demolition items. There are no other RDT&amp;E budget items supporting the 2T NNEO program. This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program, Multi-Function Fuze (MFF) and Extended Range Propelling Charge. These items will be used with 5" caliber gun ammunition. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles. Multi-Function Fuze program is nearing completion, and provides performance, safety and logisitcs enhancements to the existing inventory of Navy Conventional Fuzes. Extended Range Propelling Charge program will incorporate new technology into the production of an extended range propelling charge, increasing the range of 5" conventional ammunition in the 5"/62 caliber gun to 20 nautical miles.</p>								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA - 4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions	PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)		
<b>B. Accomplishments/Planned Program</b>				
		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.914	0.328	0.000
RDT&E Articles Quantity				
Completed failure analysis of MFF first article and made minor design changes. OPEVAL planned for completion 4th quarter FY 04.				
		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.436	0.769
RDT&E Articles Quantity				
This program will incorporate new technology into production of an extended range propelling charge (20 nautical miles), improving producibility and performance.				
		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	24.722	24.721
RDT&E Articles Quantity				
This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles.				
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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2004	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA - 4	0603609N Conventional Munitions	2299 Non-Nuclear Expendable Ordnance (NNEO)		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2003	FY 2004	FY 2005	
Previous President's Budget: (FY 04 Pres Controls)	0.916	25.773	25.778	
Current BES/President's Budget: (FY04/05 PRESBUD Controls)	0.914	25.486	25.490	
Total Adjustments	-0.002	-0.287	-0.288	
Summary of Adjustments				
BSO Adjustments	-0.002			
Economic Ammumptions		-0.287		
Inlfation			-0.082	
WCF Rates			-0.206	
Subtotal	-0.002	-0.287	-0.288	
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions			PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)																								
<p><b>D. OTHER PROGRAM FUNDING SUMMARY:</b></p> <p>Related RDT&amp;E: PE 0603795 Naval Surface Fire Support</p> <table border="1"> <thead> <tr> <th><u>Line Item No. &amp; Name</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>To Complete</u></th> <th><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>BLIN 025000 5"/54 Ammunition</td> <td>0</td> <td>0.7</td> <td>0.7</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p><b>E. ACQUISITION STRATEGY: *</b></p> <ul style="list-style-type: none"> <li>-Award 5-Year (Multi-Option) Contract for MFF.</li> <li>-Award single year competitive contract for Extended Range Propelling Charge.</li> <li>-Award two contracts for developing the GIF baseline design for high rate, low cost production. Evaluate 10 fuzes from each contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Formally document all design and test data and provide to both contractors. Complete two additional design-build-test cycles, resulting in each contractor providing 25 and 100 fuzes for government evaluation. Perform the full spectrum of laboratory, simulation and gun launch tests to determine the best design. Award 1,250 fuze option to one contractor.</li> </ul> <p><b>F. MAJOR PERFORMERS: **</b></p> <ul style="list-style-type: none"> <li>MFF: Contractor - Alliant Tech Systems (ATK), Janesville, WI - Awarded July 99</li> <li>Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, VA</li> <li>Extended Range Propelling Charge: Gov't - Naval Surface Warfare Center, Indian Head Division, Indian Head, MD</li> <li>Guidance integrated Fuzing - Contractor - unknown at this time, TBD</li> <li>Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Virginia</li> <li>Army Research, Development &amp; Engineering Center (ARDEC), Picatinney Arsenal, Picatinney, NJ</li> </ul> <p>* Not required for Budget Activities 1,2,3, and 6          ** Required for DON and OSD submit only.</p>										<u>Line Item No. &amp; Name</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>	BLIN 025000 5"/54 Ammunition	0	0.7	0.7	0	0	0	0	N/A	N/A
<u>Line Item No. &amp; Name</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>																				
BLIN 025000 5"/54 Ammunition	0	0.7	0.7	0	0	0	0	N/A	N/A																				

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA 4			0603609N Conventional Munitions			2299 Non-Nuclear Expendable Ordnance (NNEO)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/02 Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Dahlgren	1.933								1.933	
	C/CPFF	ALLIANT	1.054								1.054	
	SS/CPFF	MOTOROLA	0.336								0.336	
	WR	NSWC Indian Head	0.600			0.436	Nov-03	0.439	Oct-04	Continuing	Continuing	
	CPFF	GIF Contractor 1				9.991	Nov-03	11.723	Mar-05	Continuing	Continuing	
	CPFF	GIF Contractor 2				9.991	Nov-03	2.338	Mar-05	Continuing	Continuing	
Ancillary Hardware Development											0.000	
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			3.923	0.000		20.418		14.500		0.000	Continuing	
Remarks:												
Development Support	WR	NSWC Dahlgren				0.500	Nov-03	0.350	Oct-04	Continuing	Continuing	
Software Development	WR	NSWC Dahlgren				0.275	Nov-03	0.200	Oct-04	Continuing	Continuing	
Training Development	WR	NSWC Dahlgren						0.125	Oct-04	Continuing	Continuing	
Training Development	MIPR	ARDEC						0.350	Oct-04	Continuing	Continuing	
Integrated Logistics Support	WR	NSWC Dahlgren						0.175	Oct-04	Continuing	Continuing	
Integrated Logistics Support	MIPR	ARDEC						0.480	Oct-04	Continuing	Continuing	
Configuration Management	WR	NSWC Dahlgren				0.350	Nov-03	0.400	Oct-04	Continuing	Continuing	
Contract Support	WR	NSWC Dahlgren				0.150	Nov-03	0.350	Oct-04	Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		1.275		2.430		0.000	Continuing	
Remarks:												
Exhibit R-3, Project Cost Analysis												



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: <b>February 2004</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA - 4			0603609N Conventional Munitions			2299 Non-Nuclear Expendable Ordnance (NNEO)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/02 Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	0.528			0.780	Nov-03	1.630	Oct-04	Continuing	Continuing	
	WR	NSWC China Lake	0.200								0.200	
	WR	ARL				0.300	Nov-03			Continuing	Continuing	
Operational Test & Evaluation	WR	COMOPTEVFOR	0.200			0.200	Nov-03	0.330	Oct-04	Continuing	Continuing	
	WR	NSWC Dahlgren				0.128	Nov-03			Continuing	Continuing	
	MIPR	ARDEC						0.950	Oct-04	Continuing	Continuing	
Live Fire Test & Evaluation											0.000	
Test Assets	C/CPFF	ALLIANT		0.361	Feb-03						0.361	
	WR	NSWC Indian Head						0.400	Oct-04	Continuing	Continuing	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.928	0.361		1.408		3.310		0.000	Continuing	
Remarks:												
Contractor Engineering Support	FP	EDO	0.032								0.032	
	C/CPFF	ALLIANT		0.113	Feb-03						0.113	
	FP	Various				0.200	Nov-03	0.600	Oct-04	Continuing	Continuing	
Government Engineering Support	WR	NSWC Dahlgren	0.293	0.440	Oct-02	1.235	Oct-03	3.100	Oct-04	Continuing	Continuing	
Government Engineering Support	MIPR	ARDEC/ARL				0.400	Nov-03	0.600	Oct-04	Continuing	Continuing	
Program Management Support	WR	NSWC Dahlgren	0.093			0.350	Nov-03	0.650	Oct-04	Continuing	Continuing	
Program Management Support	MIPR	ARDEC				0.200	Nov-03	0.300	Oct-04	Continuing	Continuing	
Travel	WR	NSWC Dahlgren	0.020								0.020	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.438	0.553		2.385		5.250		0.000	Continuing	
Remarks:												
Total Cost			5.289	0.914		25.486		25.490		0.000	Continuing	
Remarks:												

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																					DATE:												
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME								PROJECT NUMBER AND NAME													
RDT&E, N / BA-5												0603609N Conventional Munitions								2299 Non-Nuclear Expendable Ordnance (NNEO)													
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Acquisition Milestones												MS B △			MS C △	LRIP1 Dec △	LRIP2 Dec △							☆ IOC	FRP Dec △								
Prototype Phase																																	
GIF Development & Demonstration												PDR △		GDR △		PRR-1 △		PRR-2 △															
GIF P3I																																	
Test & Evaluation Milestones												TRR △		TRR △		TRR △		TRR △															
Development Test																																	
Operational Test																																	
Follow-on Test																																	
Production Milestones																																	
LRIP2 FY 05																																	
LRIP2 FY06																																	
FRP FY08																																	
Deliveries																																	

R-1 SHOPPING LIST - Item No. 55

\* Not required for Budget Activities 1, 2, 3, and 6

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**UNCLASSIFIED**

**CLASSIFICATION:**

[illegible]

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		3.640	3.019	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. The Insensitive Munitions Advanced Development (IMAD) Program is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship survivability and satisfying performance and readiness requirements. Each technology area is divided into subtasks addressing specific munition/munition class IMAD deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program is being closely coordinated with other Military Departments, NATO and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IMAD requirement has been developed. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design per DoD 5000.2R.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development	
<b>B. Accomplishments/Planned Program</b>			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.237	1.154	0.000
RDT&E Articles Quantity			
Continue validation and assessment of weapon systems POA&M's for IMAD compliance. Continue compilation and analysis of weapon system, energetic material and generic technology IMAD test data.			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.905	0.703	0.000
RDT&E Articles Quantity			
Demonstrate high explosives that show improved IMAD characteristics while maintaining or improving operational performance. Complete qualification of internal blast explosive. Continue evaluation of pressed and cast metal accelerating explosives. Plan to complete qualification of high performance booster explosive to weapons systems. Begin qualification of best candidate metal accelerating explosive. Accomplishments: Demonstrated high explosives that show improved IMAD characteristics while maintaining or improving operational performance. Completed qualification of internal blast explosive. Continued evaluation of pressed metal accelerating explosives. Began qualification high performance booster explosive to weapons systems.			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.048	0.035	0.000
RDT&E Articles Quantity			
Evaluate ordnance and container concepts. Continue modeling applications that reduce and enhance IMAD warhead design.			

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>FEBRUARY 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development	
<b>B. Accomplishments/Planned Program (Cont.)</b>			
	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.450	1.127	0.000
RDT&E Articles Quantity			
<p>Evaluate and demonstrate IMAD propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IMAD characteristics. Combine candidate IMAD propellants and case concepts to demonstrate compliance with IMAD and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications.</p> <p>Accomplishments: Evaluated and demonstrated IMAD propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IMAD characteristics. Combined candidate IMAD propellants and case concepts to demonstrate compliance with IMAD and performance requirements.</p>			

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Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 22 of 28)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>FEBRUARY 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development

**C. PROGRAM CHANGE SUMMARY:**

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	3.682	3.053	3.103
Current BES/President's Budget: (FY05 Pres Controls)	3.640	3.019	0.000
Total Adjustments	-0.042	-0.034	-3.103

  

Summary of Adjustments

SBIR

BSO Adjustments

Economic Assumptions

Reprogramming

Subtotal

ISSUE 21461 cuts Insensitive Munitions funding to -0- in FY 05

	-0.033
	-0.009
	-0.034
	-3.103
	-0.042

  

Schedule:

NOT APPLICABLE

  
  
  

Technical:

NOT APPLICABLE

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**UNCLASSIFIED**

DATE:

FEBRUARY 2004

PROGRAM ELEMENT NUMBER AND NAME
---------------------------------

PROJECT NUMBER AND NAME
-------------------------

0603609N/Conventional Munitions

0363/Insensitive Munitions Advanced Development

**E. ACQUISITION STRATEGY:**

NOT APPLICABLE

NAWC WPN DIV/China Lake - Propulsion Development and Evaluation	11/03
NOSSA/Indian Head - Program Management and Explosive Development	11/03

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**Exhibit R-2a, RD TEN Project Justification**  
(Exhibit R-2a, page 24 of 28)



# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2004</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDTE, N / BA-4</b>			0603609N/Conventional Munitions			0363/Insensitive Munitions Advanced Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Propulsion Dev. And Eval.	WX	NAWC WPN DIV/China Lake	83.931	1.492	11/02	1.127	11/03	0.000	NA	0.000	86.550	NA
	RCP	NAWC WPN DIV/China Lake	10.250	0.000	NA	0.000	NA	0.000	NA	0.000	10.250	NA
Explosives Dev. And Eval.	WX	NSWC/Indian Head Div.	68.334	0.898	11/02	0.693	11/03	0.000	NA	0.000	69.925	NA
Ordnance Dev. And Eval.	WX	NSWC/Dahlgren Div.	19.338	0.048	11/02	0.035	11/03	0.000	NA	0.000	19.421	NA
Pyrotechnic Dev. And Eval.	WX	NSWC/Crane Div.	6.553	0.007	11/02	0.010	11/03	0.000	NA	0.000	6.570	NA
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			188.406	2.445		1.865		0.000		0.000	192.716	NA
Remarks:												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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UNCLASSIFIED

Exhibit R-3, Project Cost Analysis  
(Exhibit R-3, page 25 of 28)

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: <b>FEBRUARY 2004</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-4</b>			0603609N/Conventional Munitions			0363/Insensitive Munitions Advanced Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Program Management Support	WX	NSWC/Indian Head Div.	29.926	0.000	NA	0.000	NA	0.000	NA	0.000	29.926	NA
Program Management Support	WX	NOSSA	0.291	1.161	11/02	1.154	11/03	0.000	NA	0.000	2.606	NA
Travel	WX	NOSSA	0.348	0.034	11/02	0.000	01/00	0.000	NA	0.000	0.382	NA
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			30.565	1.195		1.154		0.000		0.000	32.914	NA
Remarks:												
Total Cost			218.971	3.640		3.019		0.000		0.000	225.630	NA
Remarks:												

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Exhibit R-3, Project Cost Analysis  
(Exhibit R-3, page 26 of 28)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile: NOT APPLICABLE																								DATE:															
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												FEBRUARY 2004			
RDT&E, N / BA-4												0603609N/Conventional Munitions												0363/Insensitive Munitions Advanced Development															
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4											
Acquisition Milestones																																							
Prototype Phase																																							
Radar System Development																																							
EDM Radar Delivery																																							
Software 1XXSW Delivery 2XXSW Delivery				SSR																																			
Test & Evaluation Milestones																																							
Development Test																																							
Operational Test																																							
Production Milestones																																							
LRIP I FY 05																																							
LRIP II FY 06																																							
FRP FY 07																																							
Deliveries																																							

R-1 SHOPPING LIST - Item No. 55

\* Not required for Budget Activities 1, 2, 3, and 6

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-4a, Schedule Detail: <b>NOT APPLICABLE</b>						DATE: <b>FEBRUARY 2004</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase								
System Design Review (SDR)								
Milestone II (MSII)								
Contract Preparation								
Software Specification Review (SSR)								
Preliminary Design Review (PDR)								
System Development								
Critical Design Review (CDR)								
Quality Design and Build								
Test Readiness Review (TRR)								
Developmental Testing (DT-IIA)								
Eng Dev Model (EDM) Radar Delivery - Lab								
Software Delivery 1XXSW								
Preproduction Readiness Review (PRR)								
EDM Radar Delivery - Flt Related								
Milestone C (MS C)								
Operational Testing (OT-IIA)								
Start Low-Rate Initial Production I (LRIP I)								
Software Delivery 2XXSW								
Developmental Testing (DT-IIB1)								
Developmental Testing (DT-IIB2)								
Start Low-Rate Initial Production II								
Operational Testing (OT-IIB)								
Developmental Testing (DT-IIC)								
Functional Configuration Audit (FCA)								
Low-Rate Initial Production I Delivery								
Technical Evaluation (TECHEVAL)								
Physical Configuration Audit								
Operational Evaluation (OT-IIC) (OPEVAL)								
Low-Rate Initail Production II Delivery								
IOC								
Full Rate Production (FRP) Decision								
Full Rate Production Start								
First Deployment								

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Exhibit R-4a, Schedule Detail  
(Exhibit R-4a, page 28 of 28)